UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,161	05/21/2002	Marcos Katz	875.0012USU	7338

7590 07/01/2005

EXAMINER
PEREZ, JULIO R

ART UNIT	PAPER NUMBER
2681	

DATE MAILED: 07/01/2005

Paul D Greeley
Ohlandt Greeley Ruggiero & Perle
10th Floor
One Landmark Square
Stamford, CT 06901-2682

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/018,161	KATZ ET AL.	
	Examiner	Art Unit	
	Julio R. Perez	2681	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 December 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,6-8,10-28 and 31-34* is/are rejected.

7)☒ Claim(s) *3-5,9,29 and 30* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-34 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

3. Claims 1 and 34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1 and 34, the claims recite "selecting at first station at least one of said beam directions.....of a signal...., wherein at least one direction for transmission is such that successive signals or groups of signals.....and such that on average each beam direction available to said....." The examiner interprets that in order *to conclude an average value* more than at least two elements are needed. Therefore, the examiner interprets the limitation as with at least one direction.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which

said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1- 2, 6-8, 10 - 28, 31-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keskitalo et al (Keskitalo), U.S. patent No. 6345188 in view of Petry et al (Petry), U.S. patent No. 6151513.

Regarding claims 1 and 34, Keskitalo discloses a method and an apparatus for directional radio communication between a first station and a second station, the method and apparatus comprising the steps of; determining at the first station a set of one or more beam directions which are feasible for use in transmitting a signal from said first station to said second station using a signal received from said second station (col. 6, lines 34-67; col. 7, lines 1-7, a radio signal detected from the mobile in terms of its highest quality level is received at the base station and in turn the base station deciding which best beam to point in the direction of the mobile within its coverage).

Keskitalo fails to explicitly disclose the at least one direction for successive signal being transmitted in substantially different directions and on average each beam direction available to the first station is used a substantially equal number of times.

In a similar field of endeavor, Petry discloses controlling means to control an antenna of a central station of a point-to-multipoint radio system that assures high transmission quality, which antenna has characteristics comprising sectors that are designed in a manner that their beam directions may be controlled to transmit in one direction and transmitted to cover considerably in other directions

for consecutive signals and which are used considerably equally at several times as shown in Figure 1, (col. 2, lines 62-67; col. 3, lines 8-64; Fig. 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Keskitalo with the teachings of Petry for the purpose of steering the beams so that the at least one direction during transmission on consecutive signals are used considerably equally because it would provide the system with the enhanced capability of using the sectors as narrowly as possible to the covered area by the different subscribers in order to reduce crosstalk between adjacent sectors and the antenna characteristics, and consequently the power emitted from the antenna is concentrated as narrowly as possible on existing mobile stations, which, in turn, brings a savings in transmitting power, and no spurious emission is produced for other radio systems (col. 1, lines 51-66; col. 2, lines 32-43).

Regarding claim 2, the combination of Keskitalo and Petry disclose a method wherein the direction of transmission from said first station to said second station is selected randomly from said set of feasible directions in a first random selection step (Keskitalo, col. 6, lines 34-67; col. 7, lines 1-7, the direction of the beam is decided in accordance to the strongest signal received at the base from the mobile, which mobile could be browsing randomly within the radiation coverage of the cell site).

Regarding claim 6, the combination of Keskitalo and Petry disclose a method, wherein the at least one direction for transmission is selected from the set of feasible directions according to predetermined rules (Keskitalo, col. 6, lines

34-67; col. 7, lines 1-7, the direction of the beam oriented towards the mobile is directed in response to the reception of the strongest signal from the respective mobile station).

Regarding claim 7, the combination of Keskitalo and Petry disclose a method, wherein the at least one direction for transmission is selected by selecting the next feasible direction to that used in the preceding transmission (Keskitalo, col. 6, lines 34-67; col. 7, lines 1-7, the direction of the other beams may be selected for other beam directions and different mobile stations moving around the antenna coverage areas).

Regarding claim 8 the combination of Keskitalo and Petry disclose a method, wherein the selection process for successive transmissions steps through the set of feasible directions in a first direction (Keskitalo, col. 6, lines 34-67; col. 7, lines 1-7, possible directions are left over after one direction is used as the system provides multiple beams directions on its array antenna).

Regarding claim 10, Keskitalo and Petry disclose a method, wherein signals are transmitted such that the directions selected alternate respectively from one side of the preceding direction to the other side, at least a predefined angular spacing from said first direction being maintained in each instance (Keskitalo, col. 7, lines 1-67; Fig. 4, angular spacing is provided between beams in order to provide connection improvement in the base and mobile stations transmissions).

Regarding claim 11, Keskitalo and Petry disclose a method, wherein a reference direction is defined and subsequent signals are transmitted such that

the directions selected alternate respectively from one side of the reference direction to the other side, at least a predefined angular spacing from said reference direction being maintained in each instance (Keskitalo, col.5, lines 45-67; col. 6, lines 34-67; col. 7, lines 1-53; Fig. 4, in the case of the CDMA system, the reference signal taken as the pilot signal would be taken as the reference for the base station reference to decide the strongest signal reception from the mobile and in turn direct the optimal beam towards the mobile station).

Regarding claim 12, Keskitalo and Petry disclose a method, wherein the at least one direction for transmission is selected for a given signal burst in a code division multiple access system (Keskitalo, col. 5, lines 6-13, the system used is CDMA).

Regarding claim 13, Keskitalo and Petry disclose a method, wherein the at least one direction for transmission is selected for a given time slot in a time division multiple access system (Keskitalo, col. 1, lines 24-35; col. 5, lines 6-13, the system is applicable to other type cellular systems).

Regarding claim 14, Keskitalo and Petry disclose a method, wherein the at least one direction for transmission is varied within a signal burst such that the at least one direction for transmission is selected for a component part of a signal packet or a time slot (Keskitalo, col. 1, lines 24-35; col. 5, lines 6-13, the system is applicable to systems fro transmission of either packet data or voice).

Regarding claim 15, Keskitalo and Petry disclose a method, wherein one beam direction is selected for the transmission of a signal from said first station to said second station (Keskitalo, col.5, lines 45-67; col. 6, lines 34-67; col. 7,

lines 1-53; Fig. 4, the beam signal is directed to a mobile, which, in turn, may be connecting to another).

Regarding claim 16, Keskitalo and Petry disclose a method, wherein more than one beam directions are selected for the transmission of a signal from the first station to the second station (Keskitalo, col. 6, lines 34-67; col. 7, lines 1-7, possible directions are left over after one direction is used as the system provides multiple beams directions on its array antenna).

Regarding claim 17, Keskitalo and Petry disclose, wherein two beam directions are selected for the transmission of a signal from said first station to said second station (Petry, Figure 1).

Regarding claim 18, Keskitalo and Petry disclose a method, wherein at least one direction is selected for successive groups of signals and each group of signals comprises a predetermined number of time slots (Keskitalo, col. 1, lines 24-35; col. 5, lines 6-13; col. 6, lines 34-67; col. 7, lines 1-7).

Regarding claim 19, Keskitalo and Petry disclose a method, wherein at least one direction is selected for successive groups of signals and each group of signals comprises a predetermined number of signal packets (Keskitalo, col. 1, lines 24-35; col. 5, lines 6-13; col. 6, lines 34-67; col. 7, lines 1-7).

Regarding claim 20, Keskitalo and Petry disclose a method, wherein at least one direction is selected for successive groups of signals and each group of signals comprises a predetermined number of component parts of a signal packet or a time slot (Keskitalo, col. 1, lines 24-35; col. 5, lines 6-13; col. 6, lines 34-67; col. 7, lines 1-7).

Regarding claim 21, Keskitalo and Petry disclose a method, when used in a network comprising a plurality of network elements comprising at least a plurality of said first and second stations, said selection step additionally taking into account least one network criteria and/or at least one network element criteria (Keskitalo, col. 6, lines 24-67, the system comprises several base stations and mobile stations within a determined coverage area; the best signal strength is one of the conditions for the beam to be directed to such mobile with the highest received level).

Regarding claim 22, Keskitalo and Petry disclose a method, wherein the selection step takes into account interference density in one or more directions (Keskitalo, col. 6, lines 34-67; col. 7, lines 1-53, CDMA is characterized for taking into account interference levels in the system).

Regarding claim 23, Keskitalo and Petry disclose a method, wherein the selection step takes into account power loading conditions of components within said first station (Keskitalo, col. 6, lines 34-67; col. 7, lines 1-53, power conditions are likewise taken into consideration as is one of the characteristics of CDMA systems).

Regarding claim 24, Keskitalo and Petry disclose a method, wherein the selection step takes into account instantaneous power loading condition of components within the first station (Keskitalo, col. 6, lines 34-67; col. 7, lines 1-53, power loading conditions are likewise taken into consideration as is one of the characteristics of CDMA systems).

Regarding claim 25, Keskitalo discloses a method, wherein the selection step takes into account average power loading conditions of components within the first station (col. 6, lines 34-67; col. 7, lines 1-53, power loading conditions are likewise taken into consideration as is one of the characteristics of CDMA systems).

Regarding claim 26, Keskitalo and Petry disclose a method as in claim wherein the selection step takes into account the bit-rates of multiple users connected to said first station (Keskitalo, col. 6, lines 34-67; col. 7, lines 1-53).

Regarding claim 27, Keskitalo and Petry disclose wherein the selection step takes into account the traffic conditions of each direction (Keskitalo, col. 6, lines 34-67; col. 7, lines 1-53).

Regarding claim 28, Keskitalo and Petry disclose a method according to any preceding claim, wherein the selection step takes into account the statistical loading of each direction (Keskitalo, col. 6, lines 34-67; col. 7, lines 1-53).

Regarding claim 31, Keskitalo and Petry disclose, wherein said second station at least influences the selection made by the first station (Keskitalo, col. 6, lines 34-67; col. 7, lines 1-7, a radio signal detected from the mobile in terms of its highest quality level is received at the base station and in turn the base station deciding which best beam to point in the direction of the mobile within its coverage).

Regarding claim 32, Keskitalo and Petry disclose a method, wherein said first station is a base station (Keskitalo, col. 5, lines 6-44, the system includes a mobile station).

Regarding claim 33, Keskitalo and Petry disclose a method, wherein said second station is a mobile station (Keskitalo, col. 5, lines 6-44, the system includes several mobile stations).

Allowable Subject Matter

6. Claims 3-5, 9, 29-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance: The prior art fails to teach detecting means for selecting a second selection if the first selection has been selected on a first step further selecting the second selection randomly indicating that a direction used in at least one preceding signal transmission and where the consecutive transmissions steps of feasible directions in the second direction is opposite to the first direction for a predetermined boundary reached and where allocating one direction comprises a priority rating based on extra criteria taken into account, which favors the directions with highest priority and having statistical use.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Pub. No. EP 0841826A2 to Dan Avidor	TDM-based fixed wireless loop system
US Pub. No. 6198925 to Lee	Intelligent microcell and antenna selection in digital cellular systems

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julio R. Perez whose telephone number is (571) 272-7846. The examiner can normally be reached on 7:00 - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph H. Feild can be reached on (571) 272- 4090. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JP
6/4/05

JOSEPH FEILD
SUPERVISORY PATENT EXAMINER